

Claims

1. Process for recording the deformation of objects (1),

in which a sequence of images of the object (1) is recorded with a measuring process during the deformation process,

the differential is formed between two sequential images ($n, n + 1, n + 2$)

and this differential is added to the first image.
2. Process according to Claim 1, characterised in that the images of the object (1) are recorded with an interferometry process, preferably with holographic interferometry or electronic speckle pattern interferometry (ESPI) or with speckle shearing interferometry.
3. Process according to Claim 1, characterised in that the images of the object (1) are recorded with a projection process, preferably with a grid projection process or with a Moiré process.
4. Process according to one of the preceding Claims, characterised in that phase images are determined from the images.
5. Process according to Claim 4, characterised in that the phase image is determined from one image.

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6. Process according to one of the preceding Claims, characterised in that the object (1) is irradiated with coherent radiation or coherent light, particularly laser light, or with partially coherent radiation or partially coherent light.
7. Process according to one of the preceding Claims, characterised in that the object is irradiated by a laser diode.
8. Process according to one of Claims 1 to 6, characterised in that the object is irradiated by several laser diodes.
9. Process according to Claim 8, characterised in that the illumination areas of the laser diodes do not overlap.
10. Process according to Claim 8, characterised in that the illumination areas of the laser diodes overlap.
11. Process according to one of the preceding Claims, characterised in that the images or phase images of the object are recorded by a hand-held sensor (2).
12. Process according to one of the preceding Claims, characterised in that a disrupted image or phase image, or the differential formed therefrom, is precluded from the evaluation stage.
13. Process according to Claim 12, characterised in that the disrupted image or phase image or the differential formed therefrom is ignored.

14. Process according to Claim 12, characterised in that the gap caused by the disrupted image or phase image, or the disrupted differential, is filled by the preceding and/or subsequent differential.
15. Process according to one of the preceding Claims, characterised in that the recorded images or phase images or the differentials formed therefrom, is visualised as a film.
16. Process according to one of the preceding Claims, characterised in that timeframes or phases of the deformation can be compared with one another.
17. Process according to one of the preceding Claims, characterised in that the whole-body deformation or an undesired deformation is subtracted from the total deformation.
18. Process according to Claim 17, characterised in that the undesired deformation is determined from a reference measurement.
19. Process according to Claim 17 or 18, characterised in that the subtraction of the whole-body deformation or undesired deformation from the total deformation in the images or phase images is performed prior to formation of the sum of the differentials between the images or phase images.
20. Apparatus for recording the deformation of objects (1) with a measuring device (2) for recording the sequence of images of the object (1) during the deformation of

said object, and with an evaluation device for forming the differential between two sequential images and for integrating the differential.

21. Apparatus according to Claim 20, characterised in that the measuring device exhibits an interferometry device.
22. Apparatus according to Claim 20, characterised in that the measuring device features a projection device.
23. Apparatus according to one of Claims 20 to 22, characterised by a device for determining phase images from the recorded images.
24. Apparatus according to one of Claims 20 to 23, characterised in that the measuring device encompasses a source for coherent radiation or coherent light or partially coherent radiation or partially coherent light.
25. Apparatus according to one of Claims 20 to 24, characterised by one or several laser diodes.
26. Apparatus according to one of Claims 20 to 25, characterised by a hand-held sensor.
27. Apparatus according to one of Claims 20 to 26, characterised by a device for visualisation of the recorded images or phase images as a film.

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